

### === [1] Bootstrap Analysis — Parameter Estimation ===

Method: Resampling from original dataset (n = 29) with replacement, 1000 iterations

Estimated Weibull parameters:

- Beta (shape):

95% CI : [2.63, 4.00]

Mean : 3.18

- Eta (scale):

95% CI : [630.94, 820.42]

Mean : 727.43

### === [2] Monte Carlo Simulation — Lifetime Prediction ===

Method: Simulated 10,000 failure times from Weibull(beta=3.18, eta=727.43)

Predicted lifecycle percentiles:

- B10 (10% fail) : 355.61

- B50 (median) : 647.39

- B95 (95% fail) : 1016.14

- MTTF (Average) : 649.57

=== [3] Reliability Estimation at 600 Cycles ===

Method: Bootstrap reliability curve using 1000 resampled datasets

Estimated reliability at cycle = 600:

- Median reliability : 0.573

- 95% Confidence Interval : [0.427, 0.743]

=== [4] Kolmogorov-Smirnov Test ===

KS Statistic (D): 0.1186

P-value: 0.7672

Conclusion: Simulated and actual data are likely from the same distribution ( $p > 0.05$ ).

=== PDF ===

C:\Users\User\Desktop\Amazon\gui.py:58: DeprecationWarning: "uni" parameter is deprecated since v2.5.1, unused and ignored  
pdf.add\_font("Noto", "", font\_path, uni=True)

C:\Users\User\Desktop\Amazon\gui.py:66: DeprecationWarning: The parameter "txt" has been renamed to "text" in 2.7.6  
pdf.cell(0, 8, txt=subline, ln=True)

C:\Users\User\Desktop\Amazon\gui.py:66: DeprecationWarning: The parameter "ln" is deprecated since v2.5.2. Instead of "ln", use "text" or "text\_color" to set the text color.  
pdf.cell(0, 8, txt=subline, ln=True)

Font MPDFAA+NotoSans is missing the following glyphs: " (\u25b8), " (\u2705), " (\u5206), " (\u6790), " (\u6d41), " (\u7a0b)

[PDF] Analysis\_Report.pdf